

## REMARKS

Reconsideration of the application is respectfully requested.

The drawings were objected to because of handwritten labeling. In response, corrected drawing sheets are being filed concurrently, as a Transmittal of Formal Drawings. No substantive changes have been made to the drawings.

Turning now to the claim rejections, the claims stand rejected as being either anticipated or obvious in view of U.S. Patent No. 6,045,896 issued to Wright, et al. ("Wright '896") and U.S. Patent No. 6,342,810 issued to Wright, et al. ("Wright '810"). Applicant respectfully disagrees with the rejection for the following reasons.

Beginning with claim 1, this claim recites a method where a plant output signal is divided into output subband signals. The output subband signals are digitized and time aligned with an estimated output signal that has been derived from a plant input signal. An adaptive equalization process is performed using this time aligned output subband signal and the estimated output signal. Applicant disagrees that Wright '896 anticipates such a claim.

In Wright '896, a controller and associated methods for a LINC linear power amplifier is described. Referring now to Fig. 12 of Wright '896, inputs and outputs and distortion to be corrected by an adaptive control processing and compensation estimator are illustrated. According to the Office Action at page 3, this reference allegedly teaches *dividing an output signal into a plurality of output subband signals*, by references 11, 13, and 14 of Fig. 12. The Office Action clarifies that the *plant output* is interpreted to be the TX Signal shown in Fig. 12, reference 12. This, however, is a curious choice for an attempt on reading Applicant's claims onto Wright '896, because as can be seen in Fig. 12 and as explained in the text of Wright '896, the TX Signal  $s(t)$  is the **input** to the amplifier. See also Wright '896, col. 8, lines 41-47 ("the open loop real-time forward data flow path is concerned with the direct flow of data or signals from the applied **input signal  $s(t)$**  through to amplifiers 15, 16."; and col. 13, lines 51-55, "the mathematical development of the signal component separator is undertaken by

examining Equation 2 which describes the **input signal  $s(t)$ , which is the signal to be amplified**, as samples of a band limited complex base band signal.”)

Of course, the problem with such an interpretation of Wright '896 is that the reference will not teach or suggest all of the limitations of Applicant's claim 1. For example, claim 1 recites *time aligning the digitized output subband signals ... with an estimated output signal derived from a plant input signal*. In other words, the estimated output signal has been derived from a plant input signal, while it is the plant output signal that has been divided into the subband signals. The Office Action states that the claimed *estimated output signal derived from a plant input signal* is taught by Fig. 14, references 143, 144. However, the inputs to the model LINC amplifier 143 are shown to be  $Ph_A$  and  $Ph_B$  which have been obtained by decomposing the TX Signal  $s(t)$ . [Wright, '896, col. 13, lines 12-16] Thus, assuming for the sake of argument that, as explained on page 3 of the Office Action, the output of the model LINC amplifier 146 in Fig. 14 is the claimed *estimated output signal*, then the claimed *plant input signal* is either  $Ph_A$  or  $Ph_B$ . However, that interpretation is inconsistent with the original requirement stated in the Office Action that the claimed *plant output signal* is TX Signal  $s(t)$ . The Office Action in essence turns the teachings of Wright '896 on its head, because according to Wright '896, the TX Signal  $s(t)$  is the input to the signal component separator 11, and its output is  $Ph_A$  and  $Ph_B$ .

The Office Action cannot merely ignore the relationship between a plant output signal and a plant input signal. The adjectives *plant input* and *plant output* cannot simply be ignored when interpreting Applicant's claims. A plant output is an input to a plant, whereas a plant output signal is an output of the plant. Clearly, the adaptive equalization process is to be performed upon the plant. This is quite clear from a reading of the Detailed Description of the patent application.

Nevertheless, to preclude such a strained interpretation of claim 1 as was attempted in the Office Action, claim 1 has been amended into a different form, without, of course, changing its scope. Reconsideration and withdrawal of the rejection of claim 1 is respectfully requested.

Turning now to claim 6, this claim stands rejected as being anticipated by Wright '810. According to the Office Action at page 4, Wright '810 teaches the claimed *output subband signals that make up essentially an entire spectrum of the output signal* in Fig. 34, signals  $V_{f_{rf1}}, V_{f_{rf2}} \dots$ . In addition, the Office Action alleges that Wright '810 teaches the claimed *tunable receiver* in Fig. 34B, reference 106. Applicant respectfully disagrees with this interpretation of Wright '810, because firstly, the reference 106 in Fig. 34B is to a **multiplexer**. As understood by one of ordinary skill in the art, a multiplexer does not teach or suggest, by itself, a *tunable receiver*.

Secondly, as explained in Wright '810, col. 45, line 45 to col. 46, line 4, "FIG. 34 illustrates how the predistortion architecture may be employed in a hot swap **redundant power amplifier** assembly ... This requires each amplifier assembly to support redundant amplifiers [referring to amplifiers 60<sub>1-N</sub> in Fig. 34.] that are continually stimulated with a drive signal but with the generated power dumped in a dummy load. Should an amplifier fail or degrade in performance ... the ACPCE can readily switch input signal streams and RF routing networks to ensure that the redundant amplifier is used while the failing amplifier is taken out of operation. ..." [Emphasis added] Thus, the signals  $V_{f_{rf1}}, V_{f_{rf2}} \dots$  in Fig. 34 re the outputs of redundant amplifiers 60<sub>1-N</sub>... each of which receives the same input signal. Accordingly, the Office Action has not explained what in Wright '810 teaches the claimed *output signal*, and where *a tunable receiver is to select different ones of a plurality of outbound subband signals that make up essentially an entire spectrum of the output signal*. Pointing to  $V_{f_{rf1}}, V_{f_{rf2}} \dots$  is not enough to teach or suggest how such signals, assuming they are the claimed *output subband signals*, make up essentially the entire spectrum of an output signal. Rather, it appears that each of these  $V_{f_{rf1}}, V_{f_{rf2}} \dots$  is a **separate output signal**. Accordingly, the rejection of claim 6 is also flawed and should be withdrawn.

Finally, claim 12 recites an apparatus in the means plus function format, including means for modifying a transfer function of a plant, means for dividing an output signal of the plant into frequency subband signals, and means for weighting the subband signals to remove unwanted signal components. Note, claim 12 has been amended to correct obvious misspellings, and remove unnecessary adjectives that are used in the means for weighting limitation thus broadening that limitation without introducing any

new matter. The apparatus in claim 12 also recites means for adaptively controlling the plant transfer function modifier means.

According to the Office Action at page 6, Wright '810 allegedly teaches the means for modifying the transfer function in Fig. 1, references 52 and 70 (where these are described as digital compensation signal processing and adaptive control processing and compensation estimator blocks, respectively). The Office Action takes the position that it is clear that there are *frequency subband signals* taught in Wright '810, because Wright '810 allegedly teaches the claimed *means for weighting the plurality of frequency subband signals to remove unwanted signal components*.

However, the Office Action does not point to where in Wright '810 such frequency subband signals could be found, other than through allegedly the "amplification chain of an antenna array system" (cited by the Office Action as allegedly teaching the frequency subband signals, in col. 3, lines 10-30). However, this is clearly an attempt at reading Applicant's teachings into a reference, rather than allowing the reference to educate one of ordinary skill in the art without the benefit of Applicant's teachings. Indeed, Applicant's claim 12 recites that an output signal of the plant is to be divided into these frequency subband signals. The Office Action makes no attempt at identifying an output signal and its divided frequency subband signals, and instead merely refers to a "chain of amplifiers of an antenna array system" as teaching the claimed frequency subband signals. The Office Action then proceeds with using another reference, as allegedly teaching the means for dividing the output signal of the plant into frequency subband signals. The Office Action points to nothing that one of ordinary skill in the art when reading Wright '810 would recognize to at least suggest the "amplification chain of an antenna array system" as having an output signal that is divided into a number of frequency subband signals, and there be a means provided for weighting these subband signals to remove unwanted signal components. Accordingly, the rejection of claim 12 is also improper and should also be withdrawn.

Any dependent claims not mentioned above are submitted as not being anticipated or obvious, for at least the reasons given in support of their base claims.

## CONCLUSION

In sum, a good faith attempt has been made to explain why the rejection of the claims is improper, and how the claims are believed to be in condition for allowance. A Notice of Allowance referring to claims 1-15, as amended here, is therefore respectfully requested to issue at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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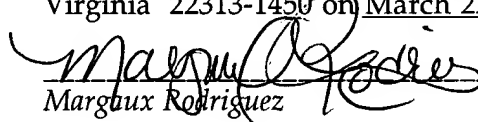
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## CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, Post Office Box 1450, Alexandria, Virginia 22313-1450 on March 22, 2005.

  
Margaux Rodriguez March 22, 2005